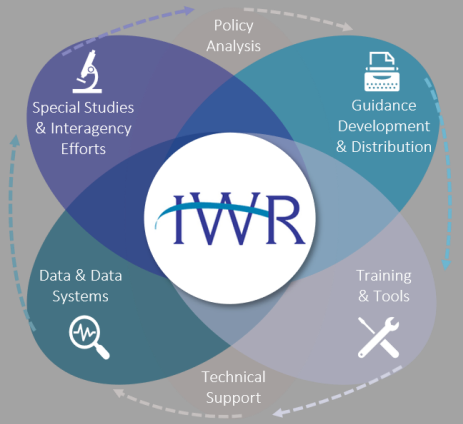
“LEVELING UP” ON SERIOUS GAMES TO IMPROVE AWARENESS, ENGAGEMENT & COLLABORATION

Hunter Merritt, Social Scientist
Institute for Water Resources
Collaboration and Public Participation Center of Expertise

U.S. ARMY CORPS OF ENGINEERS
Collaboration & Public Participation
CENTER OF EXPERTISE



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MY GOALS TODAY:

#1 – SHARE MY THOUGHTS ON: SERIOUS GAMES, GAMIFICATION, COMMUNICATION & PUBLIC ENGAGEMENT

#2 – HEAR YOUR THOUGHTS ON THESE TOPICS (YOU ARE EQUALLY EXPERTS!)

#3 – HAVE FUN!

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For those who may not know Our history…

U.S. Institute for Environmental Conflict Resolution
Udall Foundation

Environmental Conflict Resolution; CPCX formed in 2008

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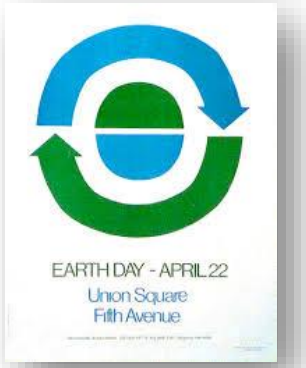
1970s

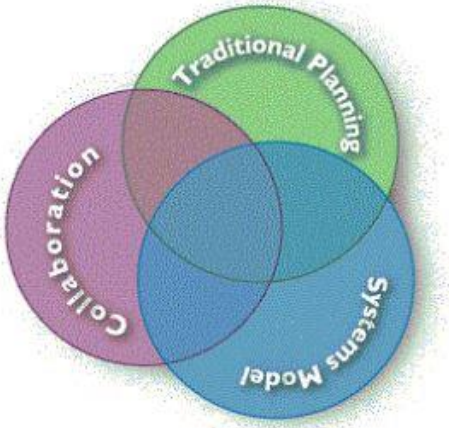
Public Involvement in Civil Works; National Environmental Policy Act signed Jan 1, 1970



1980s-1990s

Alternative Dispute Resolution; Partnering; Shared Vision Planning

2000's

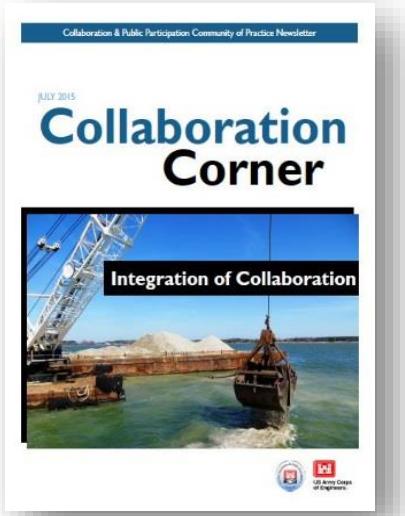


2010s

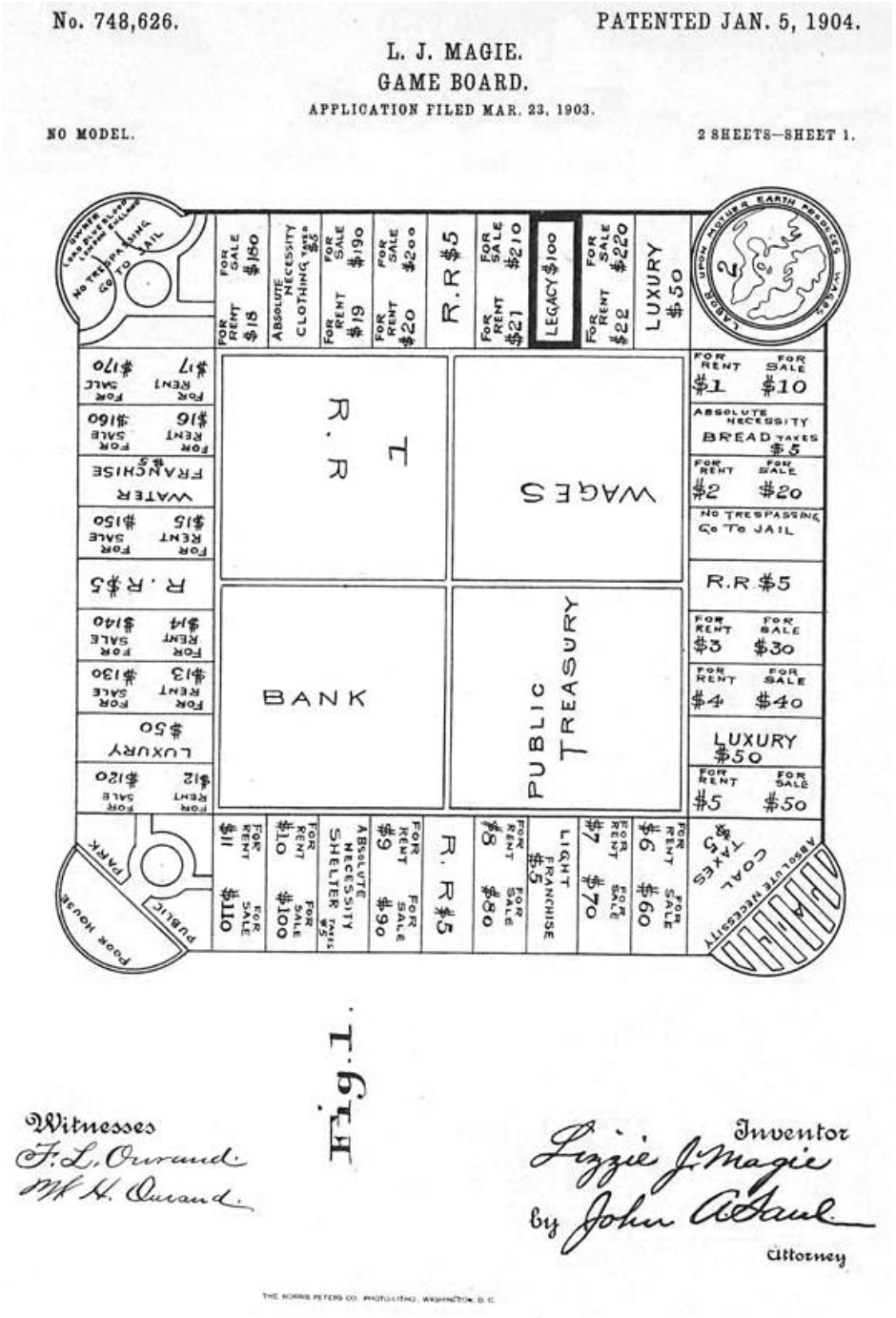
Building a Collaborative Community and Capacity

SILVER JACKETS
MANY PARTNERS • ONE TEAM

USACE LEVEE SAFETY PROGRAM
Shared Risks. Shared Solutions.



ICEBREAKER: What is the oldest game in your house?



No. 748,626. PATENTED JAN. 5, 1904.

L. J. MAGIE.

GAME BOARD.

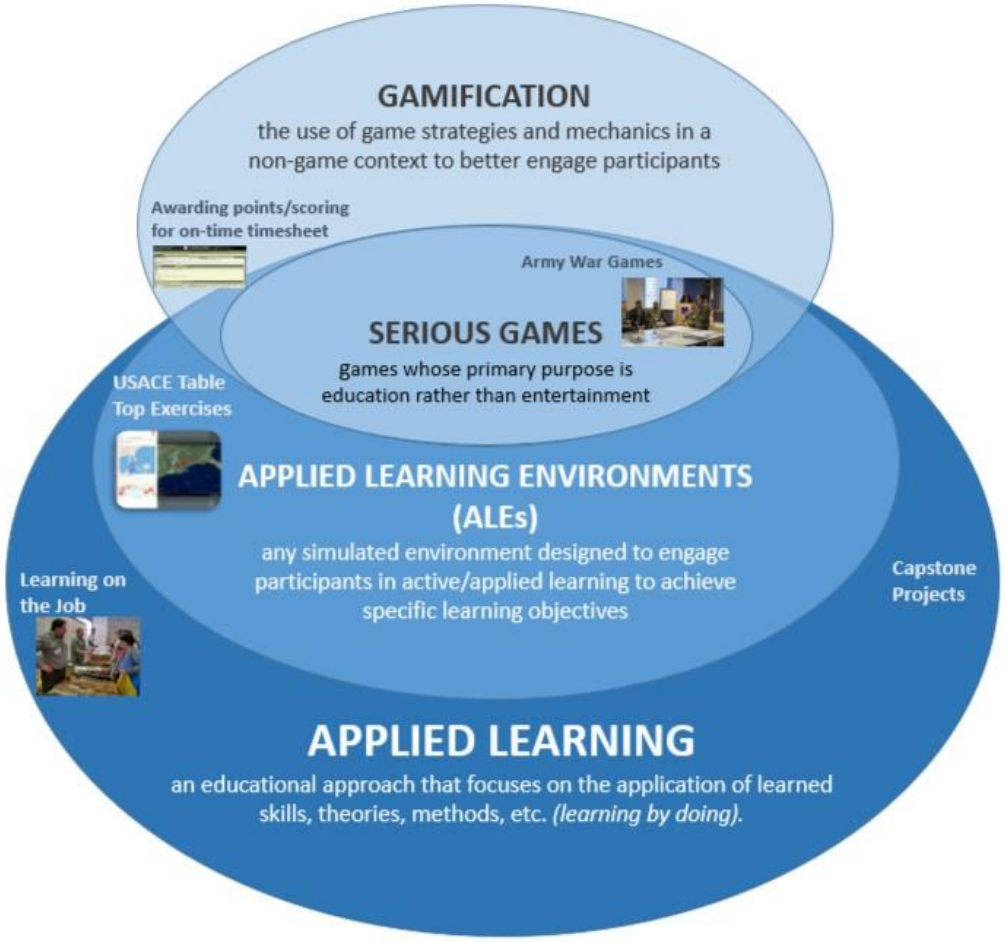
APPLICATION FILED MAR. 23, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Witnesses
F. L. Ourand.
M. H. Ourand.

Inventor
Lizzie J. Magie
by John A. Faul
Attorney

Serious Games and Applied Learning Environments



Gamification = creating a space to play for a purpose

Serious Games = purpose-driven games, not just for fun (but then, what ARE they for?)

Applied Learning = approach or activity that relates to a task/learning outcome

Applied Learning Environments (ALEs) = creating a situation where learning can happen (or, at least have FUN!)

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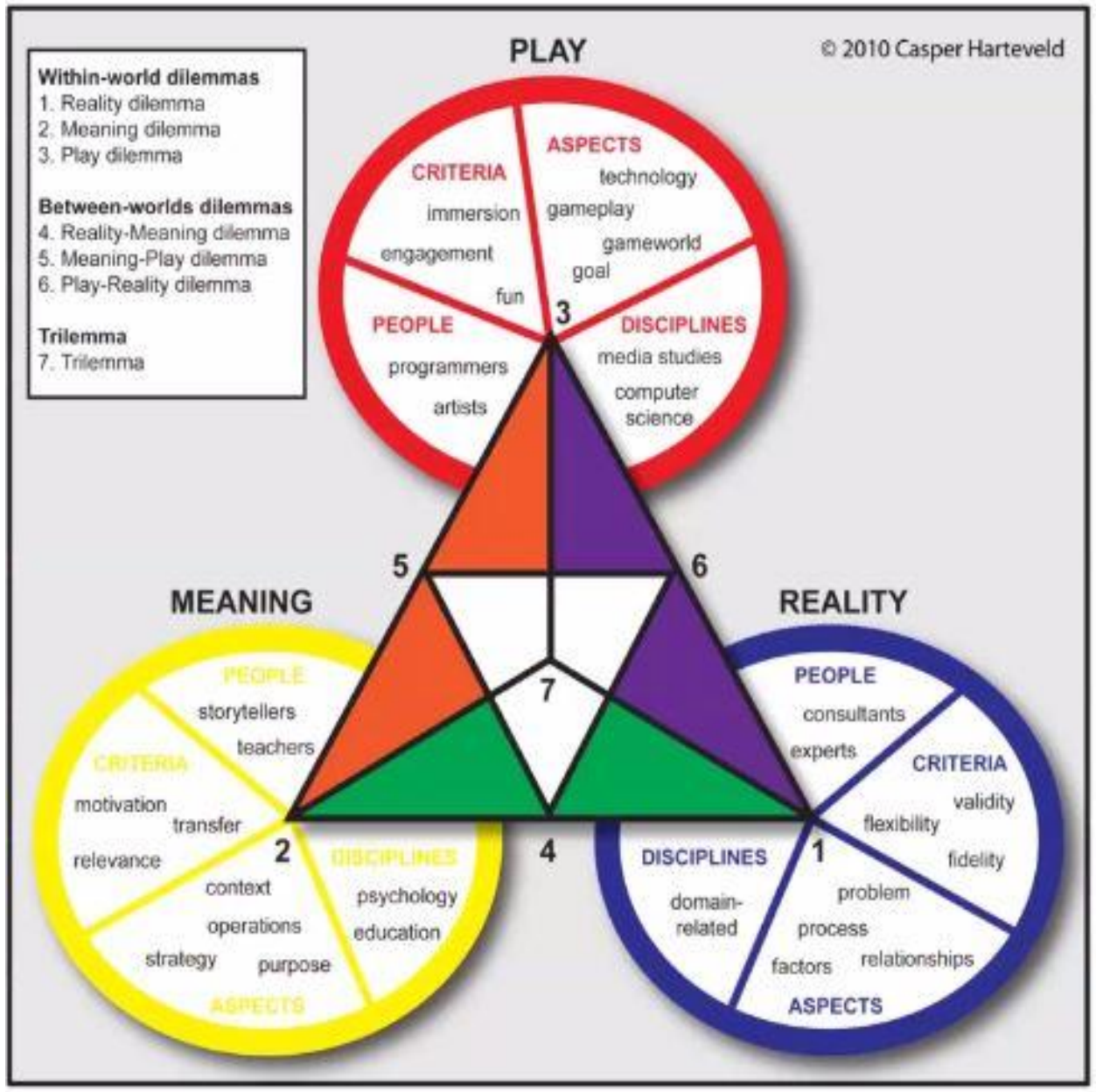

https://web.northeastern.edu/casperharteveld/tgd

Serious Gaming & Triadic Game Design:

- **PLAY**
- **REALITY**
- **MEANING**

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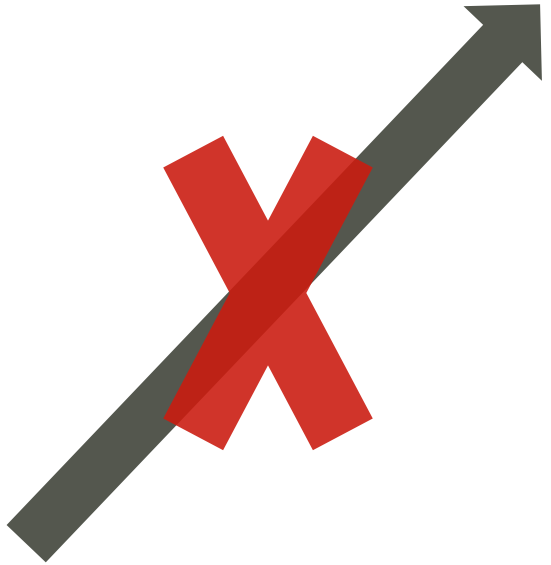
CONNECTION WITH A SPECIFIC AUDIENCE, WITH A SPECIFIC EXPECTED ACTION/OUTCOME, IS A CRITICAL KEY TO SUCCESS!!!

Audiences	Actions/Outcomes
Homeowners in the floodplain	Buy flood insurance



Middle/High School youth:
The next generation of scientists

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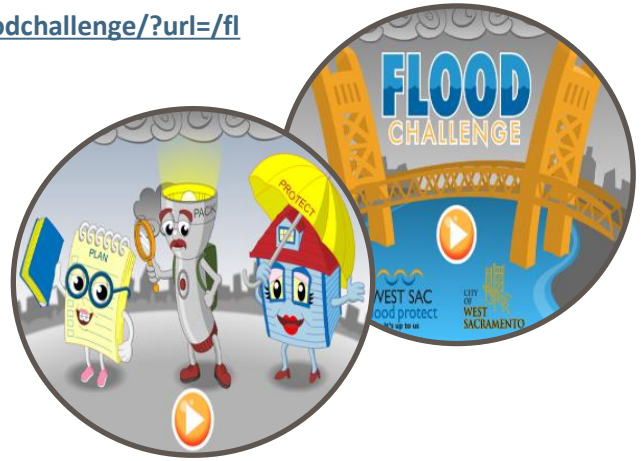
For little ones, it's all about FUN!

with some education...

West Sacramento: Flood Challenge

http://westsacfloodprotect.com/floodchallenge/?url=/floodchallenge



Flood Challenge educates kids on the importance of flood preparedness. In this game, the characters Petra the Planner, Pedro the Packer and Polly the Protector teach students:

- The importance of developing a flood emergency plan
- How heavy rainfall can lead to flooding
- What important documents you need to have handy in an emergency
- Why you should have an emergency kit, and what to put in it
- How sandbagging can prevent your home from flooding
- The importance of flood insurance

Don't Flood the Fidgits!

https://pbskids.org/designsquad/games/dont_flood/

Designed by Global PBS.

In this game kids will learn:

- How flooding can affect towns and cities
- Green infrastructure like green roofs
- Important of levees and bio swales
- How permeable surfaces can help prevent flooding

In this game the player gets to design a city and see how their design will fare in a large rainstorm event.

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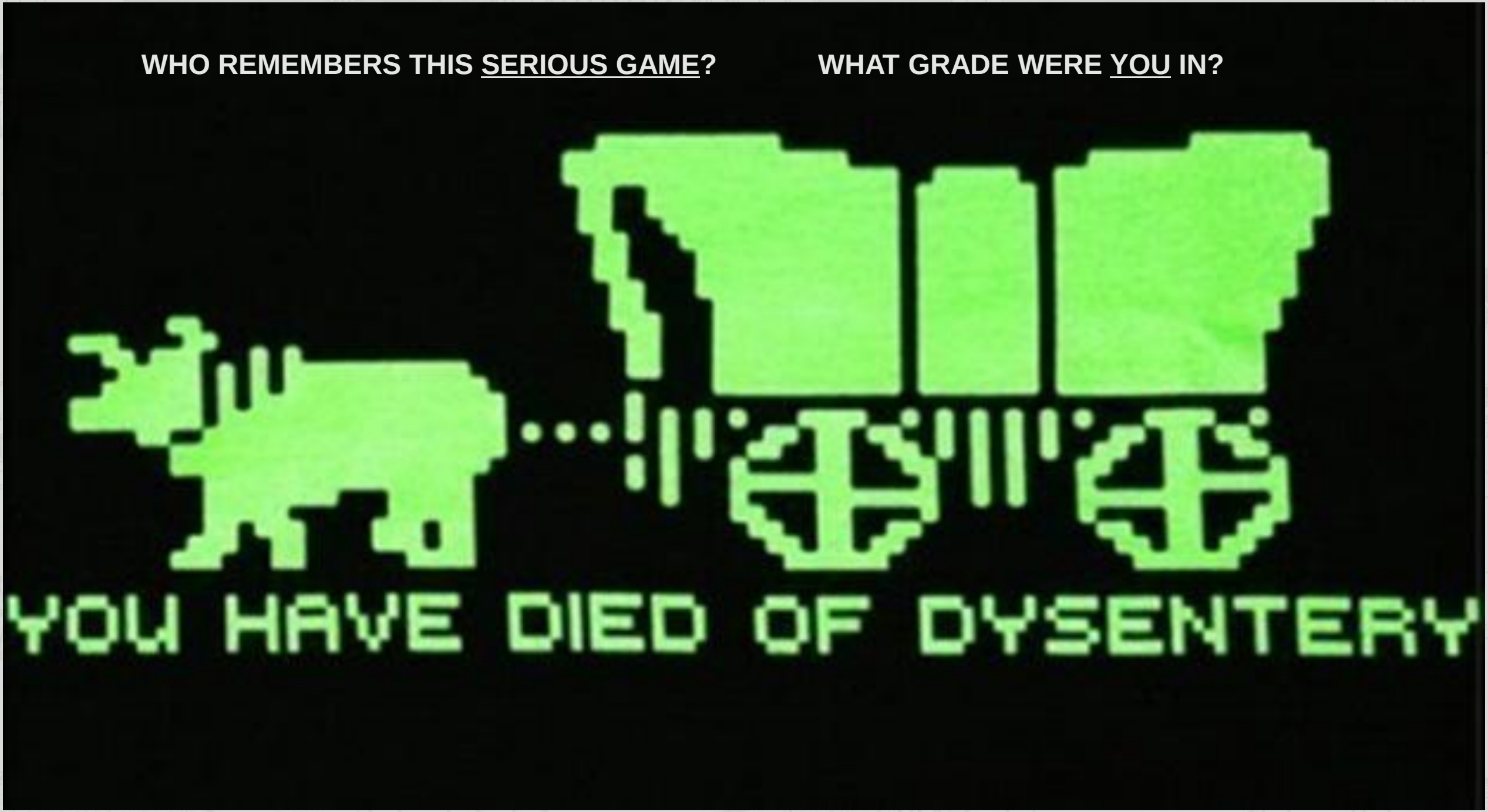
WHO REMEMBERS THIS SERIOUS GAME?

WHAT GRADE WERE YOU IN?



Video games: What development questions do you ask?

River Basin Balancer

https://www.nwd.usace.army.mil/Basin-Balancer/

This game allows users to experience the unique challenges associated with managing a river basin. Players must balance the diverse needs of:
The basin must be managed across geographic zones and weather conditions. This game illustrates the diversity of water needs, and illustrates the challenge of balancing these needs, to include:

- Flood control
- Navigation
- Hydropower
- Irrigation
- Water supply
- Recreation
- Fish and wildlife
- Water quality

Web based? App? Download?
Single Hazard or multiple hazards?
Single Player? Multiple Player?
AUDIENCE???

Flood Fighter: Nevada

http://nevadafloods.org/outreach/virtual-outreach#floodfighter

In Nevada Flood Fighter, the play simulates being a water management engineer. The game demonstrates what goes into reservoir management, and the water management engineer must construct a levee and reservoir system that will withstand a heavy rain event and not flood the town.

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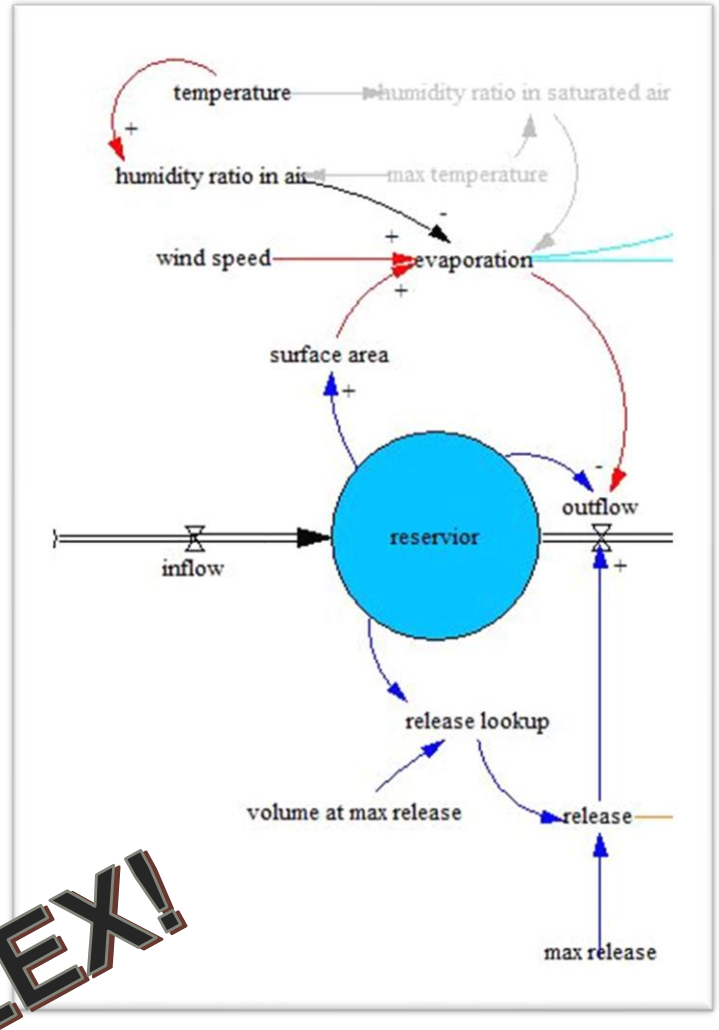
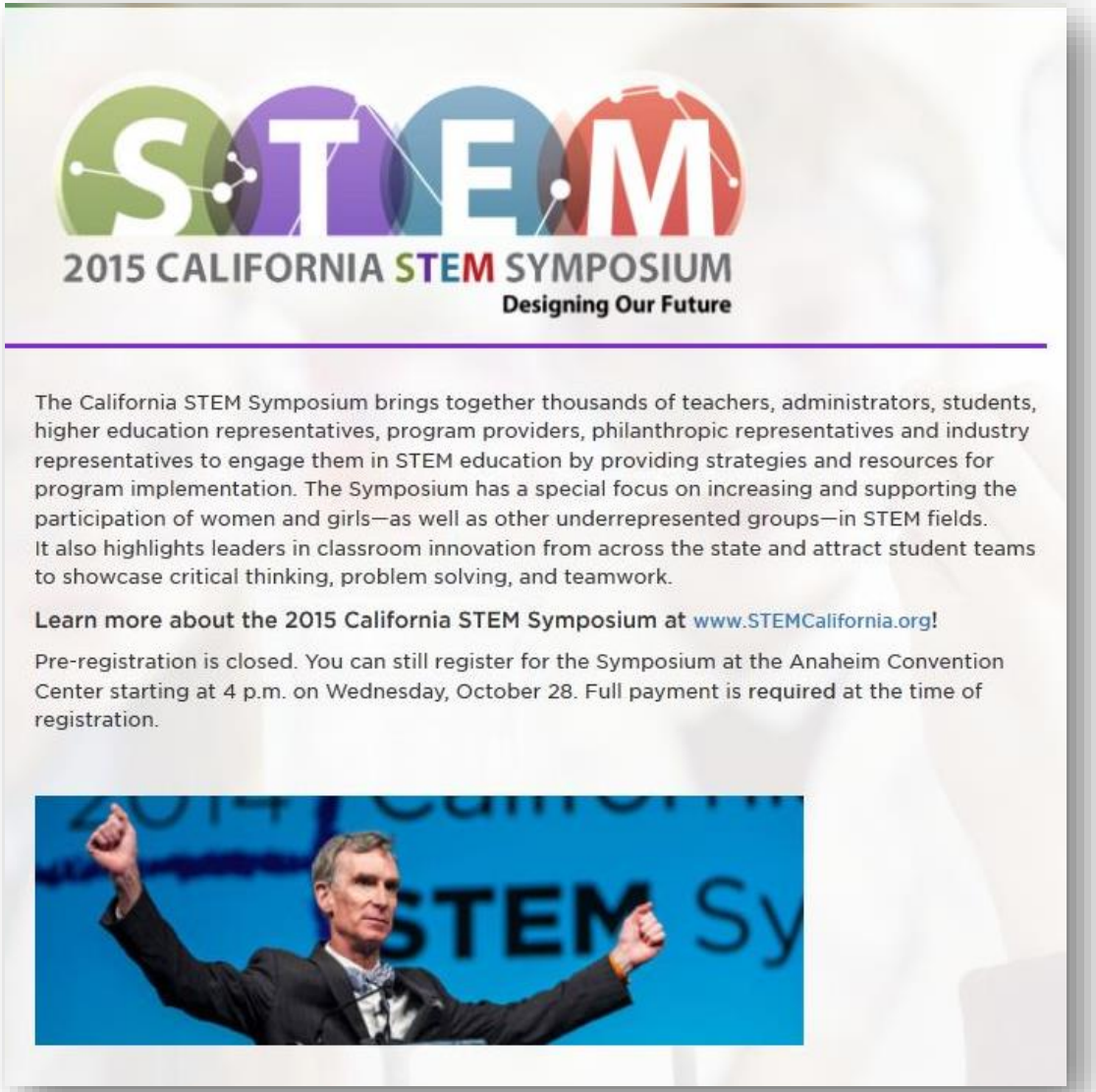
2015: SIMULATED WATER MANAGEMENT MODEL

http://www.spk.usace.army.mil/Missions/Flood-Risk-Awareness/Education-Resources/



Systems are COMPLEX!



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Complex Problems, Collaborative Solutions – Playing Games for Better Water Management Outcomes

November 20, 2018 | Diana Toledo | webinar

Video gaming for water resource management? Gaming is one of the fastest growing entertainment industries in the U.S., with estimates that 42% of Americans play video games regularly. How can we harness this interest in gaming for better water management outcomes?

When we play a game, we employ creative problem-solving skills in a rule-structured environment in order to achieve a challenging, clearly defined goal (e.g. completing a quest, solving a puzzle, or defeating an opponent). What if we could direct the creative energies, clever strategies and collaborative teamwork of games toward complex, real-world ends with serious stakes, like reducing the risks of drought or floods, facilitating public involvement in environmental governance, or revitalizing our watershed's ecosystems? The U.S. Corps of Engineers is doing just that, applying gaming approaches to educate community members, inform decisions and foster dialogue and collaboration on issues ranging from reducing flood risk in Nevada, balancing drought and flood risk mitigation in San Antonio (TX) and mitigating the effects of storm surges and sea level rise in Hampton, VA.

Download PDF

URBAN Waters LEARNING NETWORK

URBANWATERS FEDERAL PARTNERSHIP
Restoring Urban Waters, Revitalizing Communities

river NETWORK
connecting people · saving rivers

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https://www.urbanwaterslearningnetwork.org/resources/gaming/

When is it a GAME, vs. a TOOL? When is it BOTH?

Flood Map

http://flood.firetree.net/?ll=43.3251,-101.6015&z=13&m=7

Flood Map is an ***interactive map platform that projects flood inundation in response to sea level rise***. Users can zoom into an area of interest and adjust the height of sea level rise. The map will reflect the expected amount of inland flooding based on the level selected. This is a useful tool for demonstrating the danger of sea level rise and the possibility of metropolitan areas being completely inundated.

The Ocean Game

https://www.latimes.com/projects/la-me-climate-change-ocean-game/

The Ocean Game was developed by The L.A. Times in response to sea level rise across California's coast. It ***illustrates how coastal towns will be affected by sea level rise and possible infrastructure or policy decisions*** that can help mitigate it. The game is challenging to balance communities needs with safety and budget constraints. The player is given a certain amount of funding to start off the game and they must decide the best course of action to prevent homes from flooding while maintaining a vibrant beach town to sustain tourism. This game is based on interviews with coastal scientists, planning officials, homeowners, relators, and environmentalists.

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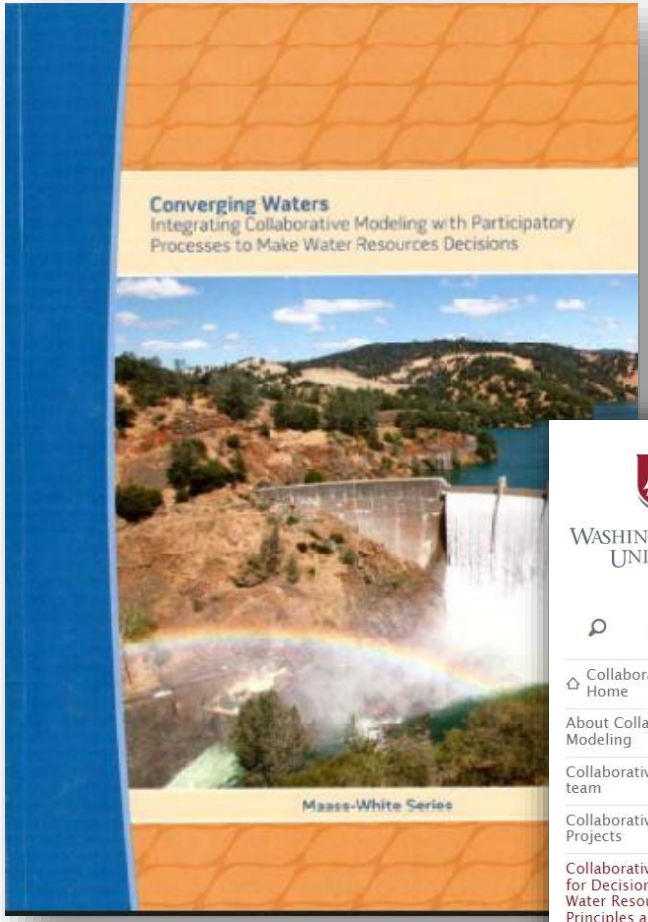
An opportunity for an Applied Learning Environment: What does collaborative modeling "look like"?



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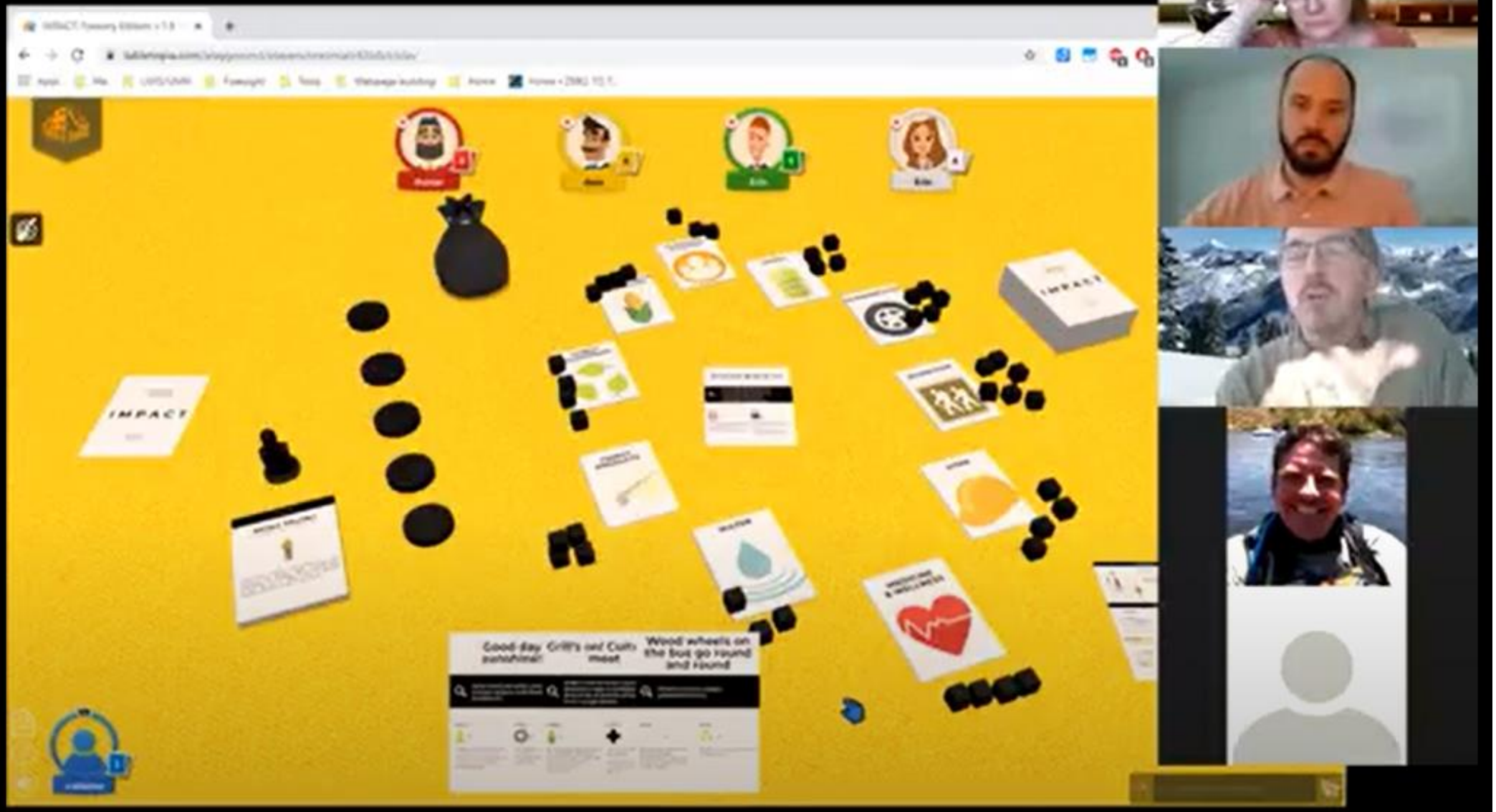
Facilitated Gaming Experiences & “In Person” Events

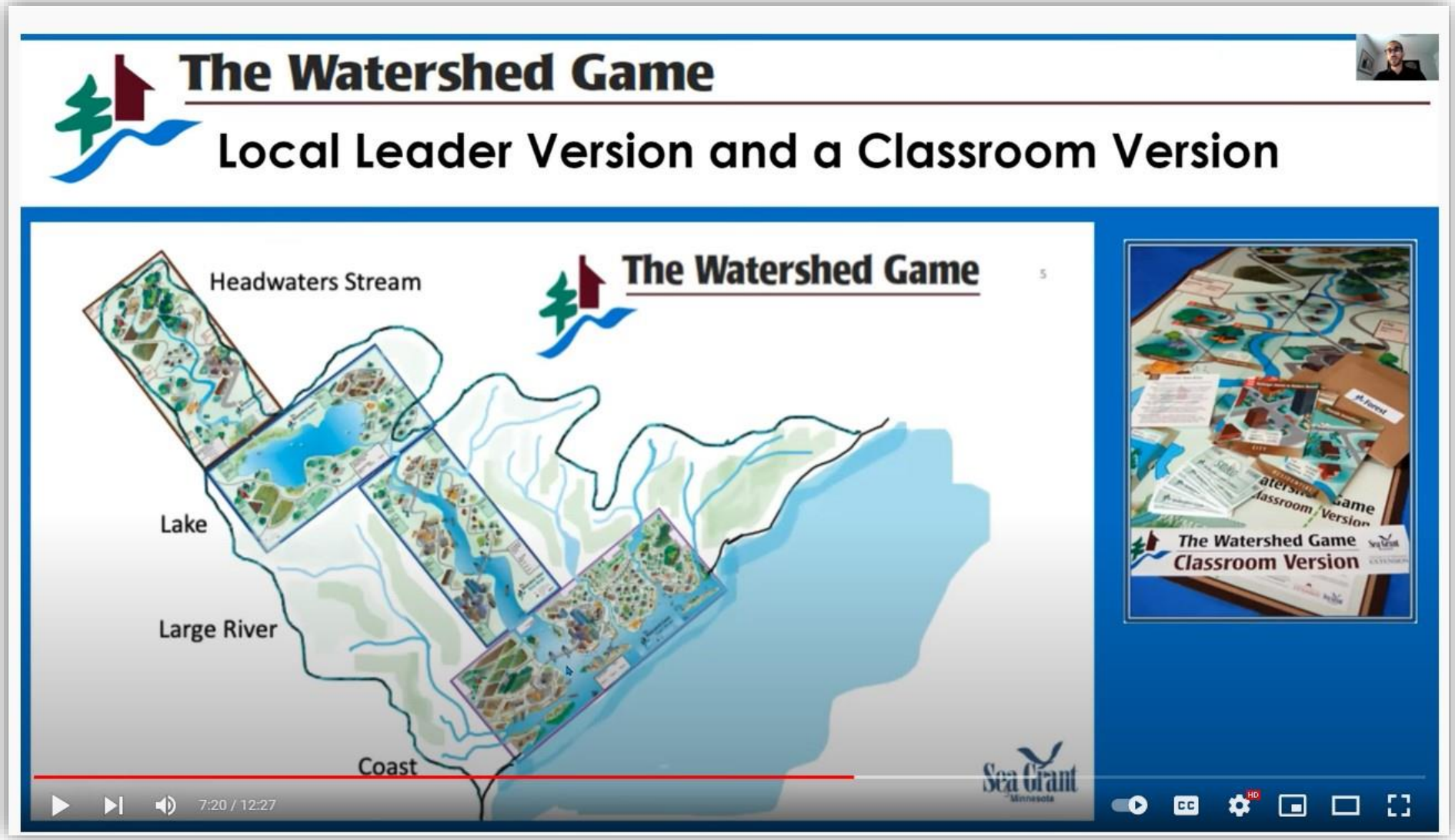
Above: USACE, NRCS, DWR, and others participate in a Multi-Hazard Tournament Demonstration at USACE Sacramento District

Right: USACE team members and Stockholm Environmental Institute (SEI) play an early version of the “Rules of Water” Tabletop Game, developed by an interdisciplinary USACE team (Kucharski, Olszewski, Merritt, Carson)

WHO ELSE IS OUT THERE PLAYING GAMES?
(snip of a demonstration of the Forest Service IMPACT game)



Watch the intro YouTube video (12 min): https://www.youtube.com/watch?v=HNdObtLi9pM



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Audience Question: Can a game facilitate itself?

Right: Students from California State University Sacramento participate in a hybrid class activity, accomplishing a “spaghetti tower” game as part of a class in Leadership and Group Development (Merritt, 2022).

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THANKS! LET'S PLAY!

Hunter.merritt@usace.army.mil

PLEASE ask questions, share insights, provide feedback!